PECOS RIVER COMPACT

Report of the River Master

Water Year 2014

Accounting Year 2015

Final Report

June 26, 2015

Neil S. Grigg
River Master of the Pecos River
749 S. Lemay, Ste. A3, PMB 330
Fort Collins, Colorado 80524

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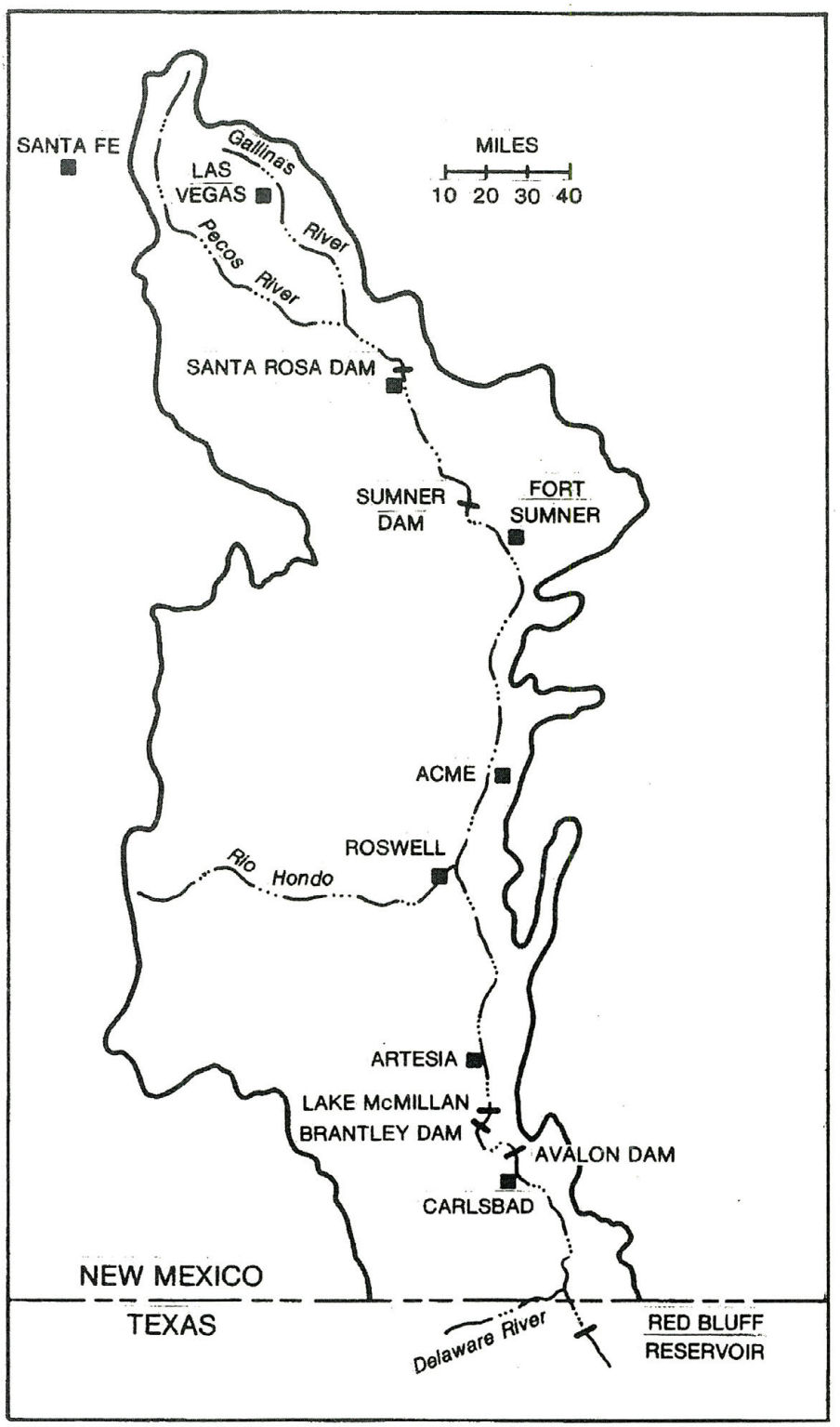

Map of Pecos River Basin Showing Accounting Reaches

PECOS RIVER COMPACT
Supreme Court of the United States
No. 65, Original
Amended Decree

Final Report of the River Master
Water Year 2014 - Accounting Year 2015
June 26, 2015

Purpose of the Report. In its Amended Decree issued March 28, 1988 the Supreme Court of the United States appointed a River Master of the Pecos River and directed him to "... Deliver to the parties a Preliminary Report setting forth the tentative results of the calculations required by Section III.B.1 of this Decree by May 15 of the accounting year..." and to consider "... any written objections to the Preliminary Report submitted by the parties prior to June 15 of the accounting year..." and to deliver "... to the parties a Final Report setting forth the final results of the calculations required by Section III.B.1 of this Decree by July 1 of the accounting year." This is the required Final Report with the determination of:

a. The Article III(a) obligation;

b. Any shortfall or overage, which calculation shall disregard deliveries of water pursuant to an Approved Plan;

c. The net shortfall, if any, after subtracting any overages accumulated in previous years, beginning with water year 1987.

Result of Calculations and Statement of Shortfall or Overage. The results of the calculations in this Final Report show that New Mexico's delivery in Water Year 2014 was an overage of 1,900 acre-feet. The accumulated overage since the beginning of Water Year 1987 is 97,600 acre-feet.

Neil S. Grigg
River Master of the Pecos River

Pecos River Compact		
Accumulated Shortfall or Overage		
	June 25, 2015	
Water Year	Annual Overage or Shortfall, AF	Accumulated Overage or Shortfall, AF
1987	15,400	15,400
1988	23,600	39,000
1989	2,700	41,700
1990	-14,100	27,600
1991	-16,500	11,100
1992	10,900	22,000
1993	6,600	28,600
1994	5,900	34,500
1995	-14,100	20,400
1996	-6,700	13,700
1997	6,100	19,800
1998	1,700	21,500
1999	1,400	22,900
2000	-12,300	10,600
2001	-700	9,900
2002	-3,000	6,900
2003	2,000	8,900
2004	8,300	17,200
2005	24,000	41,200
2006	26,100	67,300
2007	25,200	92,500
2008	6,000	98,500
2009	1,600	100,100
2010	-500	99,600
2011	500	100,100
2012	1,900	102,000
2013	-6,300	95,700
2014	1,900	97,600

Table 1. General Calculation of Annual Departures in TAF (B.1)			
Water Year	2014		
6/24/2015			
	WY 2012	WY 2013	WY 2014
B.1.a. Index Inflows			
(1) Annual flood inflow			
(a) Gaged flow Pecos R bel Alamogordo Dam	64.9	63.6	120.6
(b) Flood Inflow Alamogordo - Artesia (Table 2)	-17.2	54.4	57.3
(c) Flood Inflow Artesia - Carlsbad (Table 3)	11.2	39.9	42.5
(d) Flood Inflow Carlsbad - State Line (Table 4)	3.2	23.2	122.8
Total (annual flood inflow)	62.1	181.1	343.2
(2) Index Inflow (3-year avg)			195.5
B.1.b. 1947 Condition Delivery Obligation			89.3
(Index Outflow)			
B.1.c. Average Historical (Gaged) Outflow			
(1) Annual historical outflow			
(a) Gaged Flow Pecos River at Red Bluff NM	17.7	51.0	146.6
(b) Gaged Flow Delaware River nr Red Bluff NM	1.7	12.2	48.3
(c) Metered diversions Permit 3254 into C-2713	0.0	0.2	0.2
Total Annual Historical Outflow	19.4	63.4	195.1
(2) Average Historical Outflow (3-yr average)			92.6
B.1.d. Annual Departure			3.4
C. Adjustments to Computed Departure			
1. Adjustments for Depletions above Alam Dam			
a. Depletions Due to Irrigation (Table 5)	3.2	2	-0.2
b. Depl fr Operation of Santa Rosa Reservoir (Table 6)	1.0	8.6	-1.7
c. Transfer of Water Use to Upstream of AD	0	0	0
Recomputed Index Inflows			
(1) Annual flood inflow			
(a) Gaged flow Pecos R bel Alamogordo Dam	69.1	74.2	118.7
(b) Flood Inflow Alamogordo - Artesia	-17.2	54.4	57.3
(c) Flood Inflow Artesia - Carlsbad	11.2	39.9	42.5
(d) Flood Inflow Carlsbad - State Line	3.2	23.2	122.8
Total (annual flood inflow)	66.3	191.7	341.3
Recomputed Index Inflow (3-year avg)			199.8
Recomputed 1947 Condition Del Outflow			92.1
(Index Outflow)			
Recomputed Annual Departures			0.6
Credits to New Mexico			
C.2 Depletions Due to McMillan Dike			1.4
C.3 Salvage Water Analysis			0
C.4 Unappropriated Flood Waters			0
C.5 Texas Water Stored in NM Reservoirs			0
C.6 Beneficial C.U. Delaware River Water			0
Final Calculated Departure, TAF			1.9

Table 2. Determination of Flood Inflows, Alamogordo Dam to Artesia (B.3)

Water Year	2014												
6/24/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
Flow bel Sumner Dam	0.9	0.7	4.4	25.2	24.3	23.2	15.7	14.8	4.4	4.9	0.7	1.4	120.6
FtSumner Irrig Div	0.0	0.0	4.3	4.5	4.8	5.3	4.6	4.9	3.4	5.3	0.0	0.0	37.1
Ft Sumner ID Return	0.8	0.6	1.4	1.6	2.4	2.4	2.4	2.4	2.2	2.0	1.0	0.8	19.7
Flow past FS IDist	1.7	1.3	1.5	22.3	21.9	20.2	13.5	12.2	3.1	2.0	1.7	2.2	103.6
Channel loss	0.2	0.2	0.5	3.7	3.7	4.1	2.5	2.4	0.9	0.7	0.7	0.2	19.8
Residual Flow	1.5	1.2	1.0	18.6	18.2	16.1	11.0	9.8	2.2	1.2	1.0	1.9	83.8
Base Inflow	2.1	2.1	2.3	1.9	1.8	1.8	1.6	1.5	1.5	3.0	3.1	3.1	25.8
River Pump Divers	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.7
Residual, Artesia	3.6	3.1	3.3	20.4	19.9	17.8	12.6	11.2	3.7	4.2	4.1	5.1	108.9
Pecos Flow Artesia	3.6	3.3	3.5	6.4	43.6	7.7	27.9	18.7	33.3	8.2	5.2	5.0	166.3
Flood Inflow, AD-Art	0.0	0.1	0.2	-14.0	23.7	-10.2	15.3	7.5	29.6	4.0	1.1	0.0	57.3

Note: Whenever the computed flow past the District is less than the return flow, set the flow past the District equal to the return flow (Manual, B.3.d).

Table 3. Determination of Flood Inflows, Artesia to Carlsbad (B.4)													
Water Year	2014												
6/24/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
Rio Penasco at Dayton	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fourmile Draw nr Lakew	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	7.4	0.0	0.0	0.0	7.5
South Seven Rivers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	0.0	0.0	0.0	7.6
Rocky Arroyo at Hwy Br	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5	0.0	0.0	0.0	19.5
Flood Inflow, Art-DS3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	34.3	0.0	0.0	0.0	34.6
Pecos R at Dam Site 3	1.1	1.1	3.9	17.1	22.9	14.4	12.0	11.6	22.1	1.9	1.4	1.5	111.0
CB Sprgs New Water (from Table 7)	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-3.8
Total Inflow, DS3 - CB	0.8	0.8	3.6	16.8	22.6	14.1	11.7	11.3	21.8	1.6	1.1	1.1	107.2
Evap Loss, Lake Avalon (from Table 10)	0.2	0.3	0.4	0.5	0.5	0.6	0.6	0.3	-0.4	0.3	0.2	0.2	3.7
Storage Chg, Lake Avalon (from Table 11)	0.4	0.2	-1.6	2.6	-2.8	1.8	-1.5	-0.1	3.0	-3.2	0.9	0.9	0.6
Carls ID diversions	0.0	0.0	4.0	10.7	9.0	10.0	10.6	10.0	2.0	3.9	0.0	0.0	60.1
93% CID diver	0.0	0.0	3.7	10.0	8.4	9.3	9.8	9.3	1.9	3.6	0.0	0.0	55.9
Other depletions	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	1.4
Dark Canyon at Csbad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.5	0.0	0.0	0.0	14.5
Pecos b Dark Canyon	2.6	1.8	1.9	1.8	16.6	1.3	0.9	2.3	31.7	2.4	2.3	2.3	68.1
Pecos R at Carlsbad	2.6	1.8	1.9	1.8	16.6	1.3	0.9	2.3	17.2	2.4	2.3	2.3	53.5
Total Outflow	3.3	2.4	4.6	15.0	22.8	13.1	10.0	12.0	21.7	3.3	3.4	3.4	115.1
Flood Inflow, DS3-CB	2.6	1.7	1.0	-1.9	0.2	-1.0	-1.6	0.7	0.0	1.7	2.3	2.3	7.9
Flood Inflow, Art-CB	2.6	1.7	1.0	-1.9	0.3	-0.9	-1.6	0.8	34.3	1.7	2.3	2.3	42.5

Table 4. Summary Table for Computations, Carlsbad to State Line (B.5)

Water Year	2014				
6/24/2015					
	BCB - RB	BCB - RB*	Del R***	DC	
	RM	USGS	USGS		
Jan	0.0	0.0	0.0	0.0	
Feb	0.0	0.2	0.0	0.0	
Mar	0.0	0.2	0.0	0.0	
Apr	0.2	0.7	0.0	0.0	
May	0.2	0.1	0.0	0.0	
Jun	0.2	0.2	0.0	0.0	
Jul**	0.1	0.3	0.1	0.0	
Aug	0.2	0.0	0.0	0.0	
Sep**	74.2	59.6	46.3	0.0	
Oct	0.8	1.0	0.0	0.0	
Nov	0.3	0.8	0.0	0.0	
Dec	0.0	0.2	0.0	0.0	
Total	76.4	63.2	46.4	0.0	

Summary of flood inflows, Carlsbad to State Line, TAF

Red Bluff - Carlsbad + Dark C RM calcs)	76.4
Delaware River (USGS Computation)	46.4
Total Flood Inflow, Carlsbad to State Line	122.8

* USGS calculations BCB-RB for comparison only. Negative FIF reports not included.

** See separate calculation for BCB to RB in the Preliminary Report

*** As corrected, see Response to Objections.

Table 5. Depletions Due to Irrigation Above Sumner Dam (C.1.a)								
Water Year	2014							
4/24/2015								
	APR	MAY	JUN	JUL	AUG	SEPT	OCT	TOTAL
Precip Las Vegas FAA AP	0.54	1.16	0.55	4.93	1.87	1.95	0.32	11.32
Eff prec Las Veg FAA AP	0.53	1.11	0.54	3.79	1.72	1.79	0.31	9.79
Precip Pecos Natl Monument	0.29	2.00	0.54	3.37	3.38	2.03	0.82	12.43
Eff Precip Pecos RS	0.28	1.83	0.53	2.86	2.87	1.85	0.80	11.02
Precip Santa Rosa	0.80	1.90	0.62	6.09	1.32	1.31	0.14	12.18
Eff Precip Santa Ro	0.78	1.75	0.61	4.06	1.25	1.24	0.14	9.83
Average eff precip, ft	0.04	0.13	0.05	0.30	0.16	0.14	0.03	0.85
Consumptive use, ft	0.19	0.36	0.36	0.30	0.27	0.18	0.11	1.77
Unit depletion rate (CU less eff precip), ft	0.15	0.23	0.31	0.00	0.11	0.04	0.08	0.92
Acres (most recent inventory)	11529							
Streamflow depletion (actual use), AF	10594							
1947 depletion, AF	10804							
Difference (actual use - 1947 depletion), TAF	-0.2							
Adjustment to Gaged Flow, Pecos River below Sumner Dam, TAF =						-0.2		

Table 6. Depletions Due to Santa Rosa Reservoir Operations (C.1.b)

Water Year	2014												
6/24/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
LS 2001 table (USBR), add 4,200 feet to value shown; LSR 1997 tables used (COE); Add 4,600 feet to value shown													
Lk Sumner ga ht, avg	61.52	62.65	63.01	62.21	58.02	57.23	59.24	61.03	60.52	60.42	60.83	62.00	
LS content, AF, avg	39229	42283	43292	41073	30798	29079	33580	37958	36669	36421	37448	40505	
LS area, acres, avg	2627	2779	2827	2720	2217	2135	2344	2561	2493	2479	2534	2692	
LS evap, inches	4.87	5.01	10.37	13.86	13.94	15.11	14.50	11.28	6.97	7.37	4.19	3.23	110.69
.77 LS Evap	3.75	3.86	7.98	10.67	10.73	11.63	11.17	8.69	5.37	5.67	3.22	2.49	85.23
LS Precip, inches	0.00	0.11	0.20	0.08	1.93	0.85	5.15	1.72	4.13	0.49	0.59	0.26	15.51
Net LS Evap, inches	3.75	3.75	7.78	10.59	8.80	10.78	6.02	6.97	1.24	5.18	2.63	2.23	69.72
LSum Evaploss, TAF	0.82	0.87	1.83	2.40	1.63	1.92	1.17	1.49	0.26	1.07	0.56	0.50	14.51
L S Rosa ga ht, avg	45.30	45.10	44.85	43.65	35.06	35.53	28.87	36.94	37.43	37.22	36.88	36.66	
LSR content, AF, avg	98174	97439	96525	92220	64973	66272	49263	70365	71834	71202	70186	69536	
LSR area, acres, avg	3687	3666	3641	3531	2764	2823	2299	2970	3016	2995	2965	2948	
LSR evap, inches	3.72	4.98	8.58	8.62	10.88	11.93	11.08	9.77	6.88	6.32	4.71	3.72	91.19
.77 LSR Evap	2.86	3.83	6.61	6.64	8.38	9.19	8.53	7.52	5.30	4.87	3.63	2.86	70.22
LSR precip, inches	0.03	0.06	0.26	0.80	1.90	0.62	6.09	1.32	1.31	0.14	0.97	0.46	13.96
Net LSR Evap, inches	2.83	3.77	6.35	5.84	6.48	8.57	2.44	6.20	3.99	4.73	2.66	2.40	56.26
LSR Evaploss, TAF	0.87	1.15	1.93	1.72	1.49	2.02	0.47	1.54	1.00	1.18	0.66	0.59	14.61
Total evaploss, TAF	1.69	2.02	3.76	4.12	3.12	3.93	1.64	3.02	1.26	2.25	1.21	1.09	29.12
Sum contents, AF	137403	139722	139817	133293	95771	95351	82843	108323	108503	107623	107634	110041	
1947 area, acres	4600	4600	4600	4600	3688	3673	3315	4013	4017	3995	3996	4055	
1947 evaploss, TAF	1.44	1.44	2.98	4.06	2.71	3.30	1.66	2.33	0.41	1.73	0.88	0.75	23.68
current-1947evaploss	0.25	0.58	0.78	0.06	0.41	0.63	-0.02	0.69	0.85	0.52	0.34	0.34	5.44
						Annual adjustment for excess evaporation =							5.4

ADJUSTMENT FOR EXCESSIVE STORAGE IN SANTA ROSA RESERVOIR

			2013	2013	2014	2014
			Gage	Storage	Gage	Storage
EndYear Sumner Sto			4260.94	37728	4262.55	42006
EndYear S R Sto			4745.44	98691	4736.55	69211
Sum				136419		111217
Sto Adjustment, TAF						-7.1
Adjustm Ex Evap, TAF						5.4
Total Adjustment,TAF						-1.7

Storage adjustment
Both equal or less than 129.3 TAF, adjustment is zero
Both greater than 129.3 TAF, subtract previous from current year
Current year less than 129.3 TAF, previous greater than 129.3 TAF, subtract previous year from 129.3 TAF
Current year greater than 129.3 TAF, previous year less than 129.3 TAF, subtract 129.3 TAF from current year

Table 7. Carlsbad Springs New Water [B.4.c.(2)]					
Water Year	2014				
5/2/2015					
		TAF	AF/day	cfs	Totals
Pecos R bel DC		68.1	186.0	93.7	93.7
Dark Canyon		14.5	39.8	20.1	20.1
Pecos R bel Lake Avalon		34.9	95.4	48.1	48.1
Depletion, cfs					2.0
CID lag seep, cfs (from Table 8)					6.1
Return flow, cfs					1.0
Lake Av lagged seep, cfs (from Table 9)					22.8
PR seepage, cfs					3.0
Carls new water, cfs					-5.2
Carls new wat, TAF					-3.8
Carls new wat monthly, TAF					-0.3

Table 8. Carlsbad Main Canal Seepage Lagged [B.4.c.(2)(e)]													
Water Year	2014												
5/2/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
WY 2014													
CID, TAF	0.0	0.0	4.0	10.7	9.0	10.0	10.6	10.0	2.0	3.9	0.0	0.0	60.1
days/mo	31	28	31	30	31	30	31	31	30	31	30	31	365
cfs	0	0.0	64.6	179.8	146.0	168.2	171.9	162.1	33.4	63.8	0.0	0.0	82.5
cfs, qtr avg			22.2			164.5			123.5			21.5	
WY 2013		1Q	2Q	3Q	4Q								
FLOWS, cfs				42.1	77.0								
SEVEN %				2.9	5.4								
WY 2014 lagged		1Q	2Q	3Q	4Q								
FLOWS, cfs		22.2	164.5	123.5	21.5								
SEVEN %		1.6	11.5	8.6	1.5								
LAG		3.1	7.2	8.4	5.6	Avg =	6.1	cfs					

Table 9. Lake Avalon Leakage Lagged [B.4.c.(2)(g)]													
Water Year	2014												
5/2/2015													
WY 2014	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
Elev NM rept	75.06	75.57	75.36	74.43	75.55	73.59	74.00	74.97	75.44	75.03	73.80	75.00	
ga ht, avg*	18.06	18.57	18.36	17.43	18.55	16.59	17.00	17.97	18.44	18.03	16.80	18.00	
cfs	24.3	26.8	25.8	21.3	26.7	17.3	19.3	23.9	26.1	24.2	18.3	24.0	
days	31	28	31	30	31	30	31	31	30	31	30	31	365
cfs avg	25.6			21.8			23.1			22.2			23.2
WY 2013		1Q	2Q	3Q	4Q								
cfs				22.8	19.1								
WY 2014 lagged		1Q	2Q	3Q	4Q								
cfs		25.6	21.8	23.1	22.2								
lag cfs		23.0	22.6	23.1	22.4	Avg =	22.8	cfs					
* Computed as WS elev by NM Report minus Gage datum at 3157.0 (USBR datum)													

Table 10. Evaporation Loss at Lake Avalon [B.4.d.(1)]

Water Year	2014												
5/2/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOT
Av WS NM Rept	75.06	75.57	75.36	74.43	75.55	73.59	74.00	74.97	75.44	75.03	73.80	75.00	
Avalon ga ht, avg, ft*	18.06	18.57	18.36	17.43	18.55	16.59	17.00	17.97	18.44	18.03	16.80	18.00	
Avg area Avalon, ac**	741	777	762	700	776	647	672	735	768	739	660	737	
Panevap Brantley, in.	4.65	5.60	9.24	11.76	13.57	15.00	14.05	10.26	6.42	6.58	4.80	4.34	106.27
Lakeevap Brantley, in.	3.58	4.31	7.11	9.06	10.45	11.55	10.82	7.90	4.94	5.07	3.70	3.34	81.83
Precip Brantley, in.	0.00	0.19	0.34	0.75	2.16	0.60	0.68	2.46	10.98	0.47	0.71	0.40	19.74
Netevap, inches	3.58	4.12	6.77	8.31	8.29	10.95	10.14	5.44	-6.04	4.60	2.99	2.94	62.09
Evaploss Av, TAF	0.22	0.27	0.43	0.48	0.54	0.59	0.57	0.33	-0.39	0.28	0.16	0.18	3.67

* Computed as WS elev by NM Report minus Gage datum at 3157.0 (USBR datum)

** Based on USBR Area and Capacity Table in effect January 1, 1997

Table 11. Change in Storage, Lake Avalon [B.4.d.(2)]														
(Gage heights are end of month)														
Water Year	2014													
5/2/2015														
	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
	2013	2014												
WS NM Rept	74.8	75.4	75.7	73.5	77.0	73.2	75.7	73.6	73.4	77.3	73.1	74.4	75.6	
Gage EOM, ft*	17.8	18.4	18.7	16.5	20.0	16.2	18.7	16.6	16.4	20.3	16.1	17.4	18.6	
Storage, AF**	2347	2794	3027	1461	4109	1271	3027	1525	1397	4376	1209	2063	2948	
Change sto, TAF		0.4	0.2	-1.6	2.6	-2.8	1.8	-1.5	-0.1	3.0	-3.2	0.9	0.9	0.6
* Computed as WS elev by NM Report minus Gage datum at 3157.0 (USBR datum)														
** Based on USBR Area and Capacity Table in effect January 1, 1997														

Table 12. Data Required for River Master Manual Calculations													
Water Year	2014												
6/23/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
STREAMFLOW GAGING RECORDS, TAF													
Pecos R b Sumner Dam	0.9	0.7	4.4	25.2	24.3	23.2	15.7	14.8	4.4	4.9	0.7	1.4	120.6
Fort Sumner Main C	0.0	0.0	4.3	4.5	4.8	5.3	4.6	4.9	3.4	5.3	0.0	0.0	37.1
Pecos R nr Artesia	3.6	3.3	3.5	6.4	43.6	7.7	27.9	18.7	33.3	8.2	5.2	5.0	166.3
Rio Penasco at Dayton	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fourmile Draw nr Lakewood	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	7.4	0.0	0.0	0.0	7.5
South Seven Rivers nr Lkwd	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	0.0	0.0	0.0	7.6
Rocky Arroyo at Hwy Br nr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5	0.0	0.0	0.0	19.5
Pecos R at Dam Site 3	1.1	1.1	3.9	17.1	22.9	14.4	12.0	11.6	22.1	1.9	1.4	1.5	111.0
Pecos bel Avalon Dam	0.0	0.0	0.0	0.8	15.8	0.0	0.0	1.7	16.7	0.0	0.0	0.0	34.9
Carlsbad Main Canal	0.0	0.0	4.0	10.7	9.0	10.0	10.6	10.0	2.0	3.9	0.0	0.0	60.1
Dark Canyon at Carlsbad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.5	0.0	0.0	0.0	14.5
Pecos below Dark Canyon	2.6	1.8	1.9	1.8	16.6	1.3	0.9	2.3	31.7	2.4	2.3	2.3	68.1
Pecos R at Red Bluff	3.5	2.8	2.6	2.5	17.7	2.3	2.1	3.5	93.2	6.1	5.6	4.9	146.6
Delaware R nr Red Bluff	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.0	46.7	0.4	0.3	0.3	48.3
GAGE HEIGHTS													
Avalon gage ht, end mo	75.40	75.70	73.50	77.00	73.20	75.70	73.60	73.40	77.30	73.10	74.40	75.60	
Avalon gage ht, avg	75.06	75.57	75.36	74.43	75.55	73.59	74.00	74.97	75.44	75.03	73.80	75.00	
Sumner Lake ga ht, end mo	62.08	63.12	62.72	61.40	58.03	55.89	64.13	60.57	60.76	60.17	61.39	62.55	
Sumner Lake gage ht, avg	61.52	62.65	63.01	62.21	58.02	57.23	59.24	61.03	60.52	60.42	60.83	62.00	
Lake S Rosa ga ht, end mo	45.20	45.00	44.64	38.06	35.76	29.95	30.32	37.39	37.46	37.03	36.75	36.55	
Lake S Rosa ga ht, avg	45.30	45.10	44.85	43.65	35.06	35.53	28.87	36.94	37.43	37.22	36.88	36.66	
PRECIPITATION, INCHES*													
Brantley Lake	0.00	0.19	0.34	0.75	2.16	0.60	0.68	2.46	10.98	0.47	0.71	0.40	19.74
Las Vegas FAA AP	0.00	0.05	0.01	0.54	1.16	0.55	4.93	1.87	1.95	0.32	0.64	0.62	12.64
Pecos National Monument	0.00	0.15	0.07	0.29	2.00	0.54	3.37	3.38	2.03	0.82	0.84	0.95	14.44
Santa Rosa	0.03	0.06	0.26	0.80	1.90	0.62	6.09	1.32	1.31	0.14	0.97	0.46	13.96
Lake Santa Rosa	0.03	0.06	0.26	0.80	1.90	0.62	6.09	1.32	1.31	0.14	0.97	0.46	13.96
Sumner Lake	0.00	0.11	0.20	0.08	1.93	0.85	5.15	1.72	4.13	0.49	0.59	0.26	15.51
* Santa Rosa dam substituted for missing Santa Rosa data. Bat Cave Draw RAWS substituted for Carlsbad Caverns data.													
PAN EVAPORATION, INCHES													
Lake Santa Rosa	3.72	4.98	8.58	8.62	10.88	11.93	11.08	9.77	6.88	6.32	4.71	3.72	91.2
Lake Sumner	4.87	5.01	10.37	13.86	13.94	15.11	14.50	11.28	6.97	7.37	4.19	3.23	110.7
Brantley Lake	4.65	5.60	9.24	11.76	13.57	15.00	14.05	10.26	6.42	6.58	4.80	4.34	106.3
OTHER REPORTS													
Base Acme-Art, TAF (USGS)	2.1	2.1	2.3	1.9	1.8	1.8	1.6	1.5	1.5	3.0	3.1	3.1	25.8
Pump depl Ac-Artesia, TAF	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.7
Pumping, C-2713, Malaga B													0.2
NM irrig inv, acres (3/9/2000)													11529
NM Transfer water use, TAF													
NM salvaged water, TAF													0.00
Texas, water stored NM, TAF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Texas, use Del water, TAF													

APPENDIX

RESPONSE TO STATES' OBJECTIONS AND PENDING ISSUES

RESPONSE TO STATES' OBJECTIONS

Final Report, Accounting Year 2015

NEW MEXICO'S OBJECTIONS

1. Table 3. Determination of Flood Inflows, Artesia to Carlsbad.

New Mexico noted an error in Table 3 where 2013 data were used for CID diversions. The objection is accepted. See #3 below in the responses to Texas's objections. Tables 1 and 3 have been corrected.

2. Table 4. Flood Inflow, Carlsbad to State Line.

New Mexico explained the 2014 CID release schedules from Avalon Dam. Two such releases were noted: April 30 through May 12 and August 3 through 10. In the case of WY 2014, New Mexico indicated that the Preliminary Report did not exclude from scalping the 1,733 AF release in August. This was reanalyzed to respond to the objection.

The operational release from Lake Avalon appears at the Pecos River below Dark Canyon gage and is also apparent at the Red Bluff gage later and more spread out. Given the rainfall that occurred on August 2-3, it is difficult to identify exactly which components of the hydrographs are due to releases and to rainfall. However, it is evident that little flood runoff occurred during August. The analysis in the Preliminary Report showed 0.23 TAF of flood runoff for the month. The River Master's reanalysis, taking into account New Mexico's report of the releases and studying the lag more closely, showed a total of 0.27 TAF. The reanalysis is not considered as more accurate than the original analysis in the Preliminary Report so no change was made.

The operational releases are apparent on the hydrographs, but it will be helpful if in the future New Mexico includes a table to show the releases in future compact accounting data transmittals.

3. Table RM1. End of Month and Average Reservoir Elevations for WY 2014.

New Mexico reported corrections for reservoir elevations at Lake Santa Rosa. See item #1 for Texas's objection on the same error. The average gage height was corrected and the value shown in the Corps report of 4,735.06 was used. Table 6 has been corrected. The error for end-of-month reservoir elevation did not require correction as it was anticipated in the Preliminary Report.

4. Monthly Pumping for C-2713for WY 2014.

New Mexico reported a corrected value for the monthly pumping, see # 1 below in Texas's objections. Tables 1 and 12 were corrected.

5. Table 4. Flood Flows in the Delaware River.

New Mexico found an error in the summation of scalped Delaware River flows as reported by USGS. This is also discussed in Texas's objection # 4 below. The objection is accepted, and the revised value is 46.3 TAF. See Texas #4 below for additional discussion.

TEXAS'S OBJECTIONS

1. Table 12. Data Required for River Master Manual Calculations, WY 2014.

Lake Santa Rosa Gage Height. Texas found an error in the reported value for average gage height for May at Lake Santa Rosa. New Mexico reported the same error in the data provided to the River master. The objection is accepted and Tables 6 and 12 have been corrected. Texas showed different end of year storage values for both lakes than in the Preliminary Report, but they could not be checked and did not affect the result.

Texas also noted the incorrect footnote that the elevation for Lake Santa Rosa was referred to the 4600 foot level, and it has been removed.

Base Inflows, Acme to Artesia Reach. Texas found rounding errors from the USGS data report for May and September. The objection is accepted and corrections made to Tables 1 and 2.

Pumping for C-2713 Diversion for the Malaga Bend Project. Texas found an incorrect value for the pumping totals. New Mexico also reported the same error. The pumping totals have been revised to 247 acre-feet.

2. Table 6. Depletions Due to Santa Rosa Reservoir Operations [C.1.b], WY 2014.

Table 6 has been revised to reflect the changed data reported in item #1 above under "Lake Santa Rosa Gage Height."

3. Table 3. Determination of Flood Inflows, Artesia to Carlsbad [B.4], WY 2014.

Texas reported that the Preliminary Report contained incorrect data for Carlsbad Irrigation District Diversions resulting from use of 2013 data (Table 12 has the correct 2014 data but it was not added to Table 3). New Mexico also noted this error, and the objection is accepted. Tables 1 and 3 have been corrected.

4. Table 4. Summary Table for Computations, Carlsbad to State Line [B.5], WY 2014.

USGS Scalped Delaware River Flood Inflows. Texas noted the same error in summation of flows as New Mexico did (see NM #5 above). The objection is accepted

Texas Scalped Delaware River Flood Inflows. Texas found an event in July that added 0.1 TAF to the total computed by USGS. The River Master examined the July data and agrees that it should be counted so the objection is accepted. The total Delaware River flood inflow is therefore 46.4 TAF.

Carlsbad to Red Bluff Flood Flows. Texas recomputed scalped flood flows and arrived at 76.8 TAF as opposed to the Preliminary Report's 76.4 TAF. Exhibits G and H show Texas's computations. The difference between Texas's and the Preliminary Report's estimates is very small and there is much margin for different interpretations. For these reasons, the objection is rejected.

FINAL CALCULATED DEPARTURE

The Preliminary Report's Final Calculated Departure was an overage of 7.5 TAF. After considering the states' objections, the Final Determination is an overage of 1.9 TAF.

PENDING ISSUES

The Preliminary Report for Accounting Year 2015 explained two issues which remain unresolved: 1) possible revision of Dark Canyon inflow estimates based on an ongoing USGS reassessment of the gage rating curve; and 2) pending discussions about how to handle potential Unappropriated Flood Flows that occurred during Water Year 2014.

The Amended Decree provides two avenues for the States to agree on how these issues should be handled once they are clarified:

1. The States can reach agreement on the action; or
2. Either State can initiate a motion to be considered by the River Master.

The Amended Decree does not provide the River Master with unilateral authority to modify the Final Determination for Accounting Year 2015 unless the States initiate a request under one of these avenues.